

Guide For Teachers

"BITS & BYTES"

PLEASE
POST

TOURING SOUTHERN CALIFORNIA SCHOOLS JANUARY 18 TO JUNE 16, 1983

PRESENTING FIVE IMPORTANT CONCEPTS ABOUT THE COMPUTER REVOLUTION

BITS & BYTES introduces the following five concepts about computers, their capabilities and their significance for the future.

1. INFORMATION/MEMORY: According to Webster's New World Dictionary, information is "something told; news; intelligence -- knowledge acquired in any manner; facts; data; learning; lore." From the time of the caveman there have been systems to record this information. However, as the systems changed from painting to writing to electronic files, the nature of the information stored also changed. Computers now process, retrieve and display quantities of information that were unimaginable prior to the twentieth century. Furthermore, as opposed to the human mind which forgets or distorts the remembrances of things past, a computer can retrieve and display information exactly as it was originally recorded. How people choose to rely on computers for "remembering" things will determine the extent of man's increasing dependence on computers.

2. LOGIC/INTELLIGENCE: Computers are very intelligent, aren't they? They can perform complicated mathematical calculations in a few nano-seconds (billionths of a second); they speak exotic foreign languages; their expanded memories are practically unlimited; and, they are more accurate than a human could ever be! Computers are, however, limited to the kinds of problem-solving that can be presented in "yes/no, either/or" forms of logical reasoning. Computers have no ability whatsoever that resembles human intuition and emotion, two powerful contributors to what we define as "intelligence."

3. IMPACT ON SOCIETY: We are standing at the edge of the computer revolution. What can we expect? Like popular revolutions which preceded it (the automobile and mass-communications), the computer will have an overwhelming influence on the ways in which this and future generations live their lives. In *THE THIRD WAVE*, Toffler describes his vision of an "electronic cottage," a futuristic home where all work and play will be centered. Whether this is an accurate prediction or not, computers are already affecting our personal and professional lives, creating grave concerns as well as tremendous optimism for the future. However, these changes are mutual and result from an interaction between computers and people. People will have as great an influence on the evolution of computers as computers have on the way we live our lives.

4. HUMAN RESPONSIBILITY: Computers do make errors! Make no mistake about that. There are all kinds of bugs and glitches that work their way into software and hardware, disrupting the flow of information. So, how do people know if the solutions that computers give are correct or not? At the very least, people need the skills to estimate if a computer answer is even in the ballpark. (This is a strong argument for learning the basic skills in school.) Also, computers do not make decisions. They merely follow programs and display information. It is people who write the programs and interpret the information - and people who make the final decisions. Computers don't care.

5. UNIQUE COMPUTER CHARACTERISTICS: Computers are distinguished from all other machines by six unique and powerful properties. First, the invention of the "chip" has made computers the fastest machines in the world. Second, computers can create three-dimensional animated graphics and display them on a monitor (Cathode Ray Tube). Computers can present information selectively - they don't have to show everything they know. They can also play two parts at once, meaning computers can be both referee and opponent with no conflict of interest. Via computers operators can "network" with other computers and other operators around world without delays. Finally, computers operate in real time; that is, there is no wait - the feedback and gratification is instantaneous. Currently computer games are the only programs available to the public which utilize all or most of these six characteristics.

HOW TO USE THIS STUDY GUIDE

Because many of the children who will view **BITS & BYTES** do not have access to a personal computer, this study guide suggests a list of educational activities which deal not with the operation of computers, but rather with the important concepts which all children will encounter through their exposure to computers in the media, at video game arcades and in classrooms.

On this page the five most important of these concepts are outlined for the educator. In the center of this Study Guide suggested lessons are categorized according to the five major concepts and include exercises in the language arts, visual arts, social sciences and math. Also, since SCR's Educational Touring Program does double duty as an introduction for children to live theatre, the back page includes information about drama activities and the play. The synopsis of **BITS & BYTES** will be useful in preparing students for the production, while the list of playmaking activities can be used both in preparation for and follow-up after the performance.

We Want to Know What You Think

South Coast Repertory is very interested in the opinions of teachers and students who view the production and use the Study Guide. We also enjoy receiving students' creative responses to the performance, which we display in the SCR 4th Step Theatre Complex. Please address all correspondence and student projects to: Kris Hagen, Community Services Coordinator, SCR, P.O. Box 2197, Costa Mesa, CA 92626.



This Study Guide has been prepared with the assistance of Dr. Alison King, Professor of Elementary Education at California State College, San Bernardino, by Michael Bigelow Dixon and John Mouledoux.

KIDS & COMPUTERS

INFORMATION & memory

Objective: To compare how information is communicated, stored and recalled in different ways by humans and computers.

The Memory Test (Language Arts)

(Grades K-3) Have students put objects (bytes) into a box (disc), naming the object aloud as they do. Then close the box and test their human recall by asking them first individually and then as a group to remember all the objects. Illustrate computer "memory" by opening box and showing that all objects remain exactly as originally stored.

(Grades 3-5) Have students write a noun on a slip of paper and say it as they put it in a file box. Close the box and test the students' recall by having them attempt to list all the words in the box. Open the box to demonstrate accuracy of computer "memory."

(Grades 5-8) Have students write a paragraph on a slip of paper. Put papers into box and ask students to duplicate their paragraphs. Compare second paragraph with first. Discuss the fallability of human memory versus the accuracy of computer "memory." Repeat, only this time "destroy" all the papers after they've attempted to duplicate their paragraphs. Discuss the consequences of losing files through computer error.

Information Timeline (Language Arts & Art)

(Grades 3-8) As a group generate ideas about how information has been stored and retrieved historically (e.g., cave drawing, pictographs and hieroglyphics, stone tablets, ballads, songs, drama, books, newspapers, records, audio and video tapes and computers). Discuss what kinds, why and how information is stored (e.g., legal, leisure, financial, survival, etc.). Draw a timeline depicting information storage throughout history based on this discussion.

Compu-Speak (Language Arts)

(Grades 3-8) Have students write a sentence or a paragraph in standard English. Students then must translate it into phonetically spelled words (as computer encodes spoken language). They then exchange paragraphs and read them aloud, pronouncing them according to phonetic spelling.

File And Go Seek (Language Arts)

(Grades 4-8) As a group identify personal filing systems the students use: desk, drawers, pockets and phone and address books. Examine how they categorize, cross-reference and retrieve using these systems. Then, have students create a new filing system (e.g., using 3x5 cards for clothes, records, books, jokes, etc.).

HUMAN RESPONSIBILITY

Objectives: To investigate the limitations as well as potentials of computers, and to explore the need for human judgment in cases of possible computer fallability. Also, to raise student awareness that the computer is an extension of man and people are always the decision-makers.

Computers Gone Bonkers (Math)

(Grades 5-8) Teacher writes a complicated math problem on the blackboard and solves it with a calculator - sometimes correctly and sometimes incorrectly (by secretly punching wrong buttons.) Students must estimate the answer and decide whether the calculator solution is correct or not.

Finding The Bugs (Math, Language Arts)

(Grades K-3) Teacher gives students lists of objects or simple instructions which include an erroneous or misplaced item. Students then "de-bug" the list or instructions by finding and eliminating the errors.

(Grades 4-8) Teacher gives more complicated set of instructions or directions to students to perform a common task. Students must "de-bug" the instructions (program) by finding and correcting misspellings and erroneous or superfluous pieces of information until the directions are 100% correct. Students may then create their own lists or directions with "bugs" in them and exchange so other students can "de-bug".

Discuss This Quote

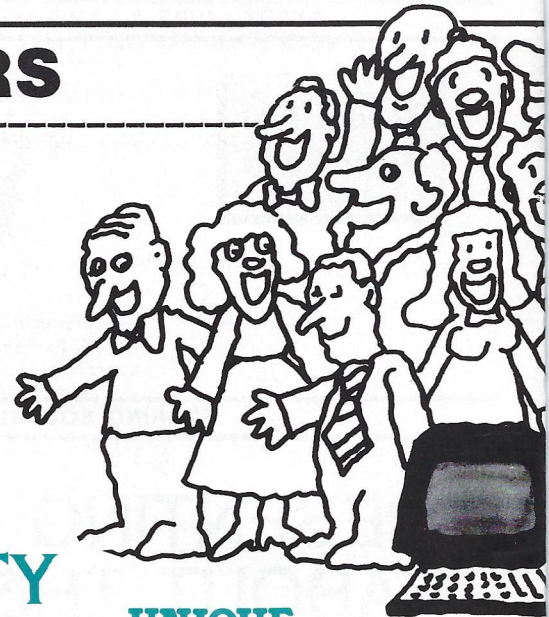
(Social Studies, Language Arts)

(Grades 5-8) Have students first discuss the following statement and then write essays explaining why the quote is true or not. "In the future computers will perform all the dull tasks and people will do the jobs that demand caring and creativity." Why?

The Computer Invasion

(Social Studies, Language Arts)

(Grades 6-8) Debate the pros and cons of the computer invasion of human privacy (e.g., misuse of confidential files, junkmail and computerized telephone sales). Have students compare the risks of computer crime with the computers' potential benefits for society.

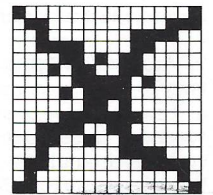


UNIQUE CHARACTERISTICS OF THE COMPU

Objective: To recognize and use the properties of computers as creatively limiting, forms of expression.

Mosaic Computer Art (Art)

(Grades 3-8) Using graph paper to simulate grid pattern of computer screens, students fill in squares, first in black-and-white and then in color, to create both abstract designs and realistic scenes.



Computer Pattern Prints (Art)

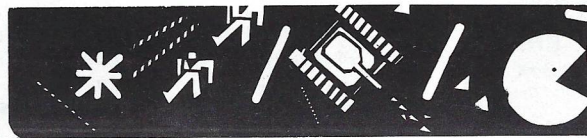
(Grades 3-8) Make stamps from linoleum, vegetables or lead linotype. Then, like a computer printer, use one shape or symbol to create a pattern or picture.

Beat The Calculator (Math)

(Grades K-8) Student says problem punching buttons on calculator. Others "race" the calculator by seeing if they can solve the problem before the calculator announces the solution. (Increasing levels of problem sophistication for older students.)

Designing A Computer Game (Language Arts & Art)

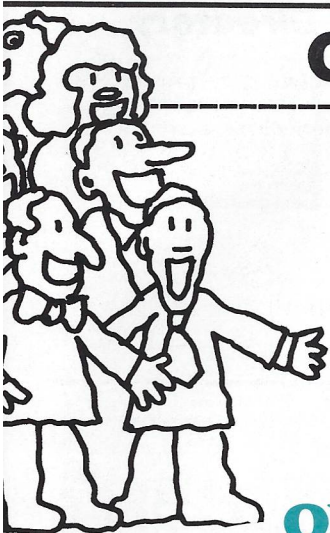
(Grades 3-8) Divide students into groups to create their own video games. Students invent a title, game objective and characters and opponents, and a design. Project culminates with presentation of games, including written descriptions and supporting illustrations.



PREPARED IN CONJUNCTION WITH THE 1983 EDUCATION

SOUTH COAST

CLASSROOM EXERCISES



impact on society

Objectives: To explore: 1) how and why computers are used in society today and will be used in the future; 2) how computers change human lifestyles and how human needs now and in the future will change the design and capabilities of computers.

Surrounded By Computers (Social Studies)

(Grades 3-8) As a class, list the places and times where students have seen or heard about computers being used. Categorize their responses and label the groups (e.g., business, entertainment, sports, medical and health, education, government, etc.) Also, discuss where computers are not used and whether or not they may be in the future.

Your Dream Computer (Social Studies)

(Grades K-5) Have students list jobs or tasks that a custom computer program could do for them (e.g., homework, allowance budget, etc.)

Steel Collar Workers (Social Studies)

(Grades K-4) Tell students they have been assigned their own "Andy the android." (Androids are mobile computers.) Pair up students and have half of class role-play Andy. The "Andys" should do (output) exactly what the other students tell them to (input). Discuss how androids and robots now and in the future impact the workforce.

Time Machine (Social Studies)

(Grades 4-8) Have student reach with their imaginations into the year 2100 and speculate on what computers are going to be able to do - and not do. Based on this discussion, have students write a short story or play which deals with computers, features themselves as characters, and begins with a time machine journey into the future.

The Great Debate

(Social Studies, Language Arts)

(Grades 6-8) Debate the pros and cons of the growing computer workforce. "Do computers replace human workers, or do computers create jobs?" Also, discuss this hypothetical situation: In the future with the help of computers the workload will be evenly divided so everyone must only work 3 hours per day. What will humans do with their leisure time?

LOGIC & INTELLIGENCE

Objectives: To use logical reasoning and to differentiate between logical processing (a function of computers) and intelligence (a characteristic of humans).

Input/Output (Language Arts)

(Grades K-3) Teacher role-plays the computer (output device) and students give (input) commands. Teacher then draws on board an animal or object exactly as the students describe. (Students will see importance of precise commands.)

Yes/No

(Language Arts)

(Grades K-8) One student (the computer) thinks about an object, activity or idea. Other students ask yes/no questions to identify the object. (The computer only answers yes or no.)

Either/Or

(Language Arts)

(Grades 4-8) One student (the computer) thinks of an object, activity or idea. Other students ask "either/or" identifying questions (e.g., "Is it either old or new?"). The computer/student must choose one of the two possibilities, or, if they do not apply, then the student/computer tells other students to "rephrase question."

If...Then (Math)

(Grades 4-8) Using the following terms of logic the teacher creates statements which the students must determine as logically true or false. (Examples: 1/ "If it is a weekday, then I go to school"; false - not on holidays & vacation. 2/ "I go to school if and only if it is a weekday"; true - never on a weekend.) The five expressions of logic are: and, or, if...then, ...if and only if..., and It is not so that... Students can also write their own conditional sentences and exchange them for the "true/false" logic determination.

Flowcharting (Math)

(Grades K-3) Students follow directions on a flowchart prepared by teacher for tasks such as pencil sharpening, shoe tying, etc.

(Grades 4-8) First students refine a particular task to fewest steps necessary, then they make a flowchart using flowcharting symbols for start, stop, decision, etc. (see example). Students exchange and evaluate.

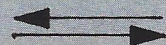
SYMBOLS USED IN FLOWCHARTING



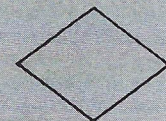
Terminal Symbol
It means start or stop.



Operation Symbol
Direction should be written inside this box.



Flow Symbol
Shows the direction to the next step.



Decision Symbol
Tells you to decide which direction to go to next.



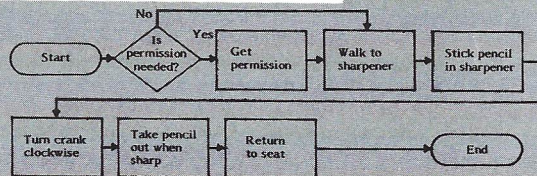
Connector Symbol
Shows exit from an entry into different parts of a flowchart.



Pre-Defined Process Symbol
Shows operator previously charted.

FLOWCHART:

To Sharpen A Pencil



'BITS & BYTES'

a synopsis

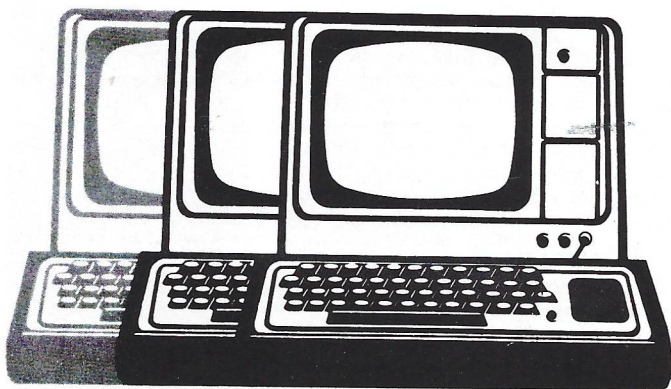
BITS & BYTES is the story of a girl, Happy, who encounters home computers for the very first time. Happy (who isn't!) is shown by super-salesman Morton B. Norton how computers can "solve all her problems and make her truly happy." Along this adventurous exploration of computers Happy not only learns about the marvels of these mighty midgets, but she discovers the talents, insights, and responsibilities that only humans possess.

The play is set in Computer-rama, a dazzling store that is designed to look like one gigantic computer. Here Morton reigns over two videophiles, nicknamed Bits and Bytes because they help him remember everything about computers. (Bits and bytes are measurement units of memory inside a computer.) Bits and Bytes are also the "Compu-kids" who assist Morton by writing special programs, explaining concepts to Happy, and by dressing up as Computer Characters to further entertain their customer and the children in the audience.

The Computer Characters speak in limericks, sing musical numbers, and parody images of the modern electronic world. The characters are physical representations of the ideas and concepts embodied in the play and they include: Mr. (Silicon) Chips, the Bugs Brothers, Pac Puppets and a Computer Casualty. Their messages are always educational, and their musical presentations are some of the highlights of the show.

As demonstrated by Morton and company, the computer proves very effective in helping Happy solve many of her problems: disorganization, homework, and nutrition, among others. By working with existent software and by learning to write her own programs, Happy appears close to achieving her lifelong dream - to be happy!

However, when the power blows leaving the computer "down," Happy discovers that the computer cannot solve all her problems. She learns that computers are terrific aids for humans, can make many chores much easier and simpler, and offer challenging and exciting games; however, Happy also realizes that only humans care and only people are responsible for what computers do.



Book & Lyrics by
MICHAEL BIGELOW DIXON & JERRY PATCH

Music by
DIANE KING

Setting by
DWIGHT RICHARD ODLE

Costumes by
KIM SIMONS

Choreography by
DIANE DEPRIEST

Directed by
JOHN-DAVID KELLER

South Coast Repertory wishes to acknowledge Mervyn's and Texas Instruments whose generosity helped make this production possible.

Computer Resource Directory

The following projects and publications may provide further ideas about computers in education. There are also many helpful articles in popular periodicals available on the newsstands.

1. ComputerTown, U.S.A.
Box E
Menlo Park, CA 94025
2. Math/Computer Education Project
Lawrence Hall of Science
University of California
Berkeley, CA 94720
3. Classroom Computer News
Intentional Educations, Inc.
341 Mt. Auburn Street
Watertown, MA 02172
4. The Computing Teacher
Dept. of Computer & Information Science
University of Oregon
Eugene, OR 97493
5. Microcomputer Center
San Mateo Educational Resources Center Library
333 Main Street
Redwood City, CA 94063
6. Educational Computer Magazine
P.O. Box 535
Cupertino, CA 95015

THEATRE CLASSROOM ACTIVITIES

THEATRE is a collaborative art which combines in a single performance the visual arts, music, singing, poetry, dance, movement and acting. Play-making projects can be devised in the classroom which begin with separate projects in each of these art forms and culminate in "multi-arts" performances.

STORY/PLOT: Begin with a story that has several characters with conflicting goals who must overcome difficult obstacles to reach a satisfactory resolution. Fairy tales are good sources, but students may create their own dramatic stories as well.

VISUAL ARTS: Have students draw pictures of the settings, characters and costumes for their story/play. Puppet-making is a good activity for characterization.

LANGUAGE/POETRY: The characters in the story/play may converse in "everyday English," but they might also speak in verse. Have students write speeches for the characters using imagery, rhyme and meter.

MUSIC: Create songs by setting the students' poems to music, either to well-known, contemporary tunes or melodies which the students compose.

MOVEMENT/DANCE: Have students create specific postures, gestures and movements for their characters. The movements of animals provide a good source for ideas.

ACTING/PERFORMING: The students are now ready to combine their speeches, music and movements with their costumes, sets and props for a "performance" of their own play.

EVALUATION: Have students write "newspaper reviews" of the performance.

SOUTH COAST REPERTORY

DAVID EMMES
Producing Artistic Director

MARTIN BENSON
Artistic Director

655 Town Center Drive, P.O. Box 2197, Costa Mesa, CA 92626
(714) 957-2602

SCENE SEVEN

(The computer-set "purrs" into operation as BITS, BYTES and NORTON put it back together.)

BITS: There we go.

BYTES: It's fixed.

NORTON: Well, Happy, we've got it going again. Now, here's the contract.

HAPPY: Uh . . . Mr. Norton . . . the computer has no feelings, right?

NORTON: Feelings? *(Looking to BITS, BYTES; THEY shake their heads.)* No, of course not. Just sign your name.

HAPPY: And it doesn't care about ME, does it?

NORTON: Care? *(Again looking to BITS, BYTES.)* No.

Computers don't care. They just function. Here's the pen.

HAPPY: And that's great, don't get me wrong. You showed me amazing things that the computer can do . . . but, I guess I'm looking for something it can't give me.

NORTON: What in the world can't it give you?

HAPPY: I guess I'm looking for a friend.

NORTON: But computers can be . . . uh . . . uh . . .

BITS: Teachers . . .

BYTES: Secretaries . . .

BITS: Mechanics . . .

BYTES: Even nurses.

NORTON: There! Hear that? Now sign. Please sign. Just initial it . . .

HAPPY: But I want a friend.

NORTON: A friend.

HAPPY: Just a friend. Besides, I really can't afford a computer. I don't want to give you all my allowance until I'm 65 years old.

BYTES: Wait a minute, Happy. Did you know that many public libraries and museums have computers that you can learn on free of charge?

NORTON: Don't tell her that!

HAPPY: I didn't know that.

BITS: Sure. And there are computer clubs and workshops in many cities where you can learn about computers for a small fee we all can afford.

NORTON: Don't tell her that!

HAPPY: I didn't know that either.

BYTES: And there are lots of inexpensive books, magazines and journals that explain everything you always wanted to know about computers.

BITS: So that you can make an educated decision about when and what type of computer to get if you finally do buy one.

NORTON: Don't tell her that!!!

HAPPY: Wow! Thanks for telling me that. In fact, thanks for teaching me so much about computers.

BYTES: That's what friends are for.

HAPPY: You mean . . . you'll be my friends.

BITS: Yes, and we'll always be around when you need us.

NORTON: Aren't you carrying this a bit too far?

BYTES: It's all in a day's work.

BITS: Besides, educating the public is the first task of the salesman. Right, Norton?

NORTON: Don't talk to me, you traitor! *(Music up fast. Computers IV")*

BITS: Computers . . .

BYTES: Computers . . .

HAPPY: Computers . . .

NORTON, HAPPY, BITS, BYTES: *(Sing.)*

They calculate, they diagnose/
They pick the winner when it's close/
They plan the flights of rocket ships/
Or families on vacation trips/
When to sell and when to pay/
Who will win election day/
How to help an athlete's form/
How to make a cold room warm/

They map the planets and the stars/
They use them for designing cars/
They print newspapers/magazines/
Set the routes for submarines/
Figure out when planes should land/
Routines for a marching band/
Where police should look for crooks/
How to be a gourmet cook/
They're used on farms/in banks/and schools/
They're used in building swimming pools!

(Refrain.)

Get your computer right away,
There's no reason to delay,
Don't you wait another day,
Learn about them right away,
How they work and how they play,
It's for sure they're here to stay . . .
Get your computer,
Your computer, your computer, your computer,
HERE TO STAAAAAAAY!

END OF PLAY

The blasting sounds and eyeball strain,
Give you one Pac-Man migraine!

(Refrain.)

Eat or be eaten,
Beat or be beaten,
Score all you can,
Before they get your man.

We race around the screen,
We're blue and gold and green.
Up and down and left and right,
Eating everything in sight.
A chomping, chewing face,
Or blasting into space,
Battle stations, everyone,
It's time to have computer fun!

(Refrain.)

Eat or be eaten,
Beat or be beaten.
Score all you can.
Before they get . . . YOUR MAN!

END OF SCENE FIVE

SCENE SIX

HAPPY: Gee, that was great! I really enjoyed that!

NORTON: Enough to sign on the dotted line?

HAPPY: Sure. I'm ready to sign. I'm gonna write programs for everything that's ever bothered me. I'm gonna solve all my problems, and I'm gonna be happy!

NORTON: *(Begins to input.)* Right! Now, I'll add these video games and instruction manuals to your order. You've got that extra 25 cents a week you can pay on that. Plus a service contract. Hey . . . I'm getting pretty good at this. All right . . . you get your computer and we get your entire allowance for the next 53 years, 7 months and 27 days. Congratulations.

HAPPY: Gee . . . I'll be over 65 by then.

NORTON: And ready to retire with your computer. You both will have earned it. Sign here.

HAPPY: Gee, what if I'm wrong? What if it doesn't make me really happy?

NORTON: It just did! You're happy now, aren't you?

HAPPY: I don't know. I feel pretty good, but I'm not sure what I'm feeling is happy.

NORTON: Do you feel tingly all over?

HAPPY: Uhh . . . sort of, but I have allergies.

NORTON: Can you hardly wait to see what happens next?

HAPPY: Kind of, but . . .

NORTON: Then you're happy! Take my word for it.

HAPPY: I can't take your word, Mr. Norton. It's my happiness.

I'd have to ask someone who knows everything. Someone who never forgets, and you can't even remember half the time.

NORTON: Well, nobody's perfect.

HAPPY: I don't know anybody that smart . . . except . . . the computer!

NORTON: What?

HAPPY: I'll ask the computer if I'm happy. It knows everything, right?

NORTON: Well, yeah, but . . .

HAPPY: *(Begins to input.)* Let's see . . . is . . . Happy . . . happy?

NORTON: Hey, wait a minute!

HAPPY: Enter! *(Pause.)* Nothing's happening. Run! *(Pause.)*

Come on, computer! *(HAPPY types furiously.)* Is . . . Happy . . . happy? Why . . . isn't . . . Happy . . . happy? How . . . can . . . Happy . . . be . . . happy? Answer me, computer? Will . . . you . . . make . . . Happy . . . happy? WILL . . . YOU . . . MAKE . . . HAPPY . . . HAPPY? *(The lights on the big computer begin to dim and flicker. There is a loud winding-down sound effect, ending in a fizzle and a thump. At the thump a puff of smoke rises from the computer. NORTON and HAPPY look stunned.)* What happened?

NORTON: *(Waving smoke away.)* Nothing happened. Just sign the contract.

HAPPY: It's dead! The computer is dead!

NORTON: It's not dead. Dead is such a harsh word. Must be something to do with the power. *(Calls.)* Bits! Bytes! *(BITS and BYTES ENTER.)*

HAPPY: Well, I'm not happy now, I can tell you that!

NORTON: Just sign the contract while we change a fuse.

HAPPY: You think I just fell off the turnip truck? It doesn't work! I'm not paying you 53 years for something that doesn't work!

NORTON: It works. It's the fastest, most efficient machine in the world. It's gone to the moon. It regulates our air temperature. It cooks our food. It wakes us up. It . . .

HAPPY: DOESN'T WORK!

NORTON: Well . . . nobody's perfect.

HAPPY: That doesn't explain THIS!

BITS & BYTES

CAST

MORTON B. NORTON	The quintessential snake-oil salesman
BITS	M.B.N.'s assistant - a female videophile
BYTES	M.B.N.'s assistant - a male vid-kid
HAPPY	A normal young girl
(CAMEO CHARACTERS)	
ADDING MACHINE	Daughter of Abacus (played by BITS)
FILING CABINET	Curse of the working man (played by BYTES)
MANUAL TYPEWRITER	Laughable old crank (STAGE MANAGER)
BUGS BROTHERS	Insect musicians from the 50's (BITS, BYTES, STAGE MANAGER)
VIDEO GAME CHARACTERS	Characters from computer screen (BITS, BYTES, STAGE MANAGER)
MR. CHIPS	Intelligent slab of baked silicon (STAGE MANAGER)

TIME

The present or thereabouts.

PLACE

COMPUTER-RAMA: a store designed with the latest in computer gimmickry.

SEQUENCE OF MUSICAL NUMBERS

Computers I	NORTON, BITS, BYTES
Computers II	NORTON, BITS, BYTES
Bits And Bytes	NORTON, BITS, BYTES
Computers III	NORTON, BITS, BYTES
No Problem	NORTON, BITS, BYTES
The Office Stars	TYPEWRITER, ADDING MACHINE, FILING CABINET
Blocked	BUG BROTHER ONE, TWO
Eat Or Be Eaten	VIDEO GAME CHARACTERS
Who's Gonna Love You	
When The Power Blows?	HAPPY, NORTON, BITS, BYTES, MR. CHIPS
Computers IV	NORTON, HAPPY, BITS, BYTES

NOTE: Although the script of BITS & BYTES is divided into a number of separate scenes for rehearsal purposes, the action should be continuous.